ſidered it in relation to the *Sun*, in reſpect whereof, its motion is regular, he conſiders the ſame in relation to the *Earth*, where *We* obſerve it; and ſhews by the means of his *Tables*,what is to be added or ſubſtracted, to know, at what time the ſaid *Spot* is to come into the middle of *Jupiter*'s Diske, according as he is Oriental or Occidental. He hath alſo conſidered it in relation to an unmovable point, which he has ſuppoſed to be the firſt point of *Aries*, becauſe we thither refer here upon Earth the beginning of all the Celeſtial motions, and *there* is the *Primum mobile*, that one would imagine,if we were in *Jupiter*, as we do here imagine Ours of 24. hours.

The Diſcovery is one of the beſt, that have been yet made in the Heavens; and thoſe,that hold the Motion of the earth,find in it a full Analogy. For,*Jupiter* turning about the Sun, does nevertheleſs turn about his *Axis*; and although he be much bigger than the Earth, he does nevertheleſs turn much more ſwiftly than it, ſince he makes more than two Turns, and a third part, for its one; and carries with him 4. Moons,as the Earth does one.

This Obſervation ought to excite all Curious perſons to endeavour the perfecting of *Optick Glaſſes*,to the end that it may be diſcovered,whether the other *Planets*,as *Mars*,*Venus* and *Mercury*,about whom no Moon hath as yet been diſcovered, do yet turn about their *Axes*,and in how much time they do ſo; eſpecially *Mars*, in whom ſome *Spot* is diſcover'd, and *Venus*, wherein M *Burattini* hath ſignified from *Poland*, he has obſerv'd Inequalities, as in the Moon.

It will be worth while, to watch for the ſeeing of *Jupiter* again this Spring,that this happy Obſervation may be confirmed in divers places, and endeavours uſed to make new ones.

An Account of ſome Books, lately publiſhed.

I. *Hydroſtatical Paradoxes,made out by New Experiments* (*for the moſt part Phyſical, and Eaſie*) *by the Honourable Robert Boyle.* This Treatiſe,promiſed in *Numb*.8. of theſe Papers,is now come forth: And was occaſioned by the peruſal of the Learned Monſieur *Paſchalls* Tract, *Of the Æquilibrium of Liquors*, and of the *Weight of the Air*: Of which two Subjects, the *latter* having been more clearly made out in *England* by Experiments, which could not be made by Monſieur *Paſchal* and others, that wanted the advantage of ſuch Engines and Inſtruments, as have here been frequently made uſe

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off; Our Noble Author inſiſts moſt upon giving us his thoughts of the former, *videl.* the *Æquilibrium of Liquors*: Which Diſcourſe conſiſting partly of *Concluſions*, and partly of *Experiments*, the *former* ſeem to Him, to be almoſt all of them conſonant to the Principles and Laws of the *Hydroſtaticks*; but as for the *latter*, the Experimental proofs, offered by M. *Paſchall* for his Opinions, are by our Author eſteemed ſuch, that he confeſſes, he hath no mind to make uſe of them: for which he alledges more reaſons than one; which, doubtleſs, will appear very ſatisfactory to Intelligent *Readers*.

Wherefore, inſtead of thoſe *Paſchalian* Experiments, there is in this *Treatiſe* deliver'd a far more Expeditious way, to make out, *not only* moſt of the *Concluſions*, agreed on by theſe two Authors, *but* others alſo, that M. *Paſchall* mentions not; and that with ſo much more eaſe and clearneſs, that perſons, but ordinarily verſed in the common principles of *Hydroſtaticks*, may readily apprehend, what is deliver'd, if they will but bring with them a due Attention, and Minds diſpoſed to prefer Reaſon and Experience to Vulgar opinions and Authors.

It not being our *Authors* preſent Task, to deliver a Body of *Hydroſtaticks*, but only ſome *Paradoxes*, which he conceives to be proveable by his New way of making them out, he delivers them in as many diſtinct Propoſitions; after each of which, he endeavours, in a Proof, or an Explication, to ſhow, both that it is true, and why it ought to be ſo.

The *Paradoxes* themſelves (after a premiſed *Poſtulatum*) are theſe:

1. That in Water, and other Fluids, the Lower parts are preſſed by the Upper.

2. That a lighter Fluid may gravitate or weigh upon a heavier.

3. That, if a Body, contiguous to the Water, be altogether, or in part, lower than the higheſt level of the ſaid Water, the lower part of the Body will be preſſed upward by the Water, that touches it beneath.

4 That in the Aſcenſion of Water in Pumps, *&c.* there needs nothing to raiſe the Water, but a Competent weight of an External Fluid.

5. That the preſſure of an External Fluid is able to keep an Heterogeneous Liquor ſuſpended at the ſame height in ſeveral Pipes, though theſe Pipes be of very different Diameters.

6. If a Body be placed under Water, with its uppermoſt Surface parallel to the Horizon; how much Water ſoever there may be on this or that ſide above the Body, the direct preſſure ſuſteined by the Body (for we now conſider not the Lateral nor the Recoyling preſſure, to which the Body may be expoſed, if quite environed with Water) is no more, than that of a Column of water, having the Horizontal Superficies of the Body for its Baſis, and the Perpendicular depth of the Water for its height.

And ſo likewiſe,

If the Water, that leans upon the Body, be contained in Pipes open at both ends; the preſſure of the Water is to be eſtimated by the weight of a pillar of Water, whoſe Baſis is equal to the lower Orifice of the Pipe (which we ſuppoſe to be parallel to the Horizon) and its height equal to a perpendicular, reaching thence to the top of the Water; though the Pipe be much inclined towards the Horizon, or though it be irregularly ſhap'd, and much broader in ſome parts, than the ſaid Orifice.

7. That a Body, immerſed in a Fluid, ſuſtains a Lateral preſſure from the Fluid; and that increaſed, as the depth of the immerſed Body, beneath the Surface of the Fluid, increaſeth.

8. That Water may be made as well to depreſs a Body lighter than it ſelf, as to buoy it up.

9. That, whatever is ſaid of Poſitive Levity, a parcel of Oyl lighter than Water, may be kept in Water without aſcending in it.

10. That the cauſe of the Aſcenſion of Water in Syphons, and of its flowing through them, may be explicated without having a recourſe to Nature's abhorrency of a *Vacuum*.

11. That a Solid Body, as ponderous as any yet known, though near the Top of the water it will ſink by its own weight; yet if it be placed at a greater depth, than that of twenty times its own thickneſs; it will not ſink, if its deſcent be not aſſiſted by the weight of the incumbent Water.

Theſe are the *Paradoxes*, evinced by our Authour with much evidence and exactneſs, and very likely to invite Ingenious men to cultivate and to make further diſquiſitions in ſo excellent a part of Philoſophy, as are the *Hydroſtaticks*; an Art deſerving great *Elogiums*, not only, upon the account of its *Theorems* and *Problems*, which are moſt of them pure and handſome productions of Reaſon, very delightful and divers of them ſurpriſing, and beſides, much conducing to the clear explication and thorow-underſtand-

ing

ing of many both familiar and abſtruſe *Phænomena* of Nature; but alſo, upon the ſcore of its *Practical* uſe, ſince the Propoſitions, it teaches, may be of great importance to Navigation, and to thoſe that inquire into the Magnitudes and Gravities of Bodies, as alſo to them, that deal in Salt-works: Beſides, that the *Hydroſtaticks* may be made divers waies ſerviceable to *Chymiſts*, as the Author intimates, and intends to make manifeſt, upon ſeveral occaſions, in his yet unpubliſht part of the *Uſefulneſs of Natural and Experimental Philoſophy*.

Theſe Propoſitions are ſhut up by two important *Appendixes*, whereof the *one* contains an Anſwer to ſeven Objections by a late learned Writer, to evince, that the upper parts of water preſs not upon the lower; the *other*, ſolves that difficult *problem*, why *Urinators* or *Divers*, and others, who deſcend to the bottom of the Sea, are not oppreſſed with the weight of the incumbent water? where, among other ſolutions, *that* is examined, which occurs in a printed Letter of Monſieur *des Cartes*, but is found unſatisfactory.

II. *Nicolai Stenonis de Muſculis & Glandulis Obſervationum ſpecimen cum duabus Epiſtolis Anatomicis*. In the *ſpecimen* it ſelf, the Author, having deſcribed in *general*, both the *Structure* and the *Function* of the *Muſcles*, applies that deſcription to the *Heart*, to demonſtrate that *that* is alſo a *true Muſcle*: Obſerving *firſt*, that in the ſubſtance of the *Heart* there appears nothing but *Arteries*, *Veins*, *Nerves*, *Fibres*, *Membrans*; and that that, & nothing elſe is found in a *Muſcle*; affirming withall, that which is commonly taught of the *Muſcles*, and particularly of the *Heart's Parenchyma*, as diſtinct from *Fibres*, is due, not to the *Senſes*, but the *Wit* of *Anatomiſts*: ſo that he will not have the *Heart* made up of a ſubſtance peculiar to it ſelf, nor conſidered as the principle of *Innate heat*, or of *Sanguification*, or of *vital ſpirits*. He obſerves *next*, that the *Heart* performs the like *operation* with the *Muſcles*, to wit, to contract the Fleſh; which action how it can have a different cauſe from that of the Contraction made in the *Muſcles*, where there is ſo great a parity and agreement in the *Veſſels*, he ſees not. And as for the *Phænemena*, that occur, of the *Motion* of the Heart, he undertakes to explicate them all, from the *Ductus* or *Poſition* of the *Fibres*; but refers for the performance of this undertaking to another *Treatiſe*, he intends to publiſh.

As to his Obſervations abous *Glanduls*, he affirms, that he has been the Firſt that has diſcover'd that Veſſel, which by him is call'd

Salivare,

Salivare Exterius, paſſing from the *Parotides* (or the two chief Arteries that are on the right and left ſide neer the Throat) into the Mouth, and conveying the *Spittle*: Where he alſo gives an account of ſeveral other Veſſels and Glanduls, ſome about the *Lips*; others under the *Tongue*; others in the *Pallate* &c. To which he adds the Veſſels of the *Eye-lids*, which have their root in the *Glanduls* that are about the Eyes, and ſerve for the *ſhedding of Tears*. He mentions alſo ſeveral things about the *Lymphatick veſſels*, and is of opinion, that the knowledge thereof may be much illuſtrated by that kind of *Glanduls* that are called *Conglobata*, and by their *true* inſertion into the veins; the miſtake of the latter whereof, he conceives to have very much miſled the Noble *Ludovicus de Bills*, notwithſtanding his excellent method of *diſſection*. And here he obſerves *firſt*, that all the *Lymphatick veſſels* have ſuch a commerce with the *Glanduls*, that none of them is found in the body, which either has not its origine *from*, or is inſerted *into* a *Glandule*: And *then*, that *Glanduls* are a kind of *Strainers*, ſo form'd, that whilſt the Blood paſſes out of the Arteries into the Veins through the ſmall *Capillary* veſſels, the *Serous* parts thereof, being freed from the *Sanguineous*, are by vertue of the heat expell'd through fit pores into the *Capilaries* of the *Lymphaticks*; the direction of the *Nerves* concurring.

Conglobate *Glanduls are called thoſe, that do conſiſt, as it were, of one continued ſubſtance, having an* even *ſuperficies; whereof there are many in the* Meſentery, *and in other places: contra diſtinguiſht to thoſe, that bear the name of* Conglomerate *Glanduls, which are made up of ſeveral ſmall Kernels, ſuch as the* Pancreas, *the* Salivating Glanduls, *&c.*

Of the two annex'd *Epiſtles*, the *Firſt* gives an account of the diſſection of two *Raja's* or *Skates*, and relates that the Author found in the bellies of theſe Fiſhes a *Haddock* of 1½ ſpan long, and a *Sole*, a *Plaiſe*, and nine middle-ſized *Sea-crafiſhes*; whereof not only the three former had their fleſh, in the fiſhes ſtomack, turn'd into a *fluid*, and the Griſtles or Bones into a *ſoft* ſubſtance, but the *Crafiſhes* had their ſhels comminuted into very ſmall particles, tinging here and there the *Chyle* near the *Pylorus*; which he judges to be done not ſo much by the heat of the Fiſhes ſtomack, as by the help of ſome digeſting juyce. Coming to the *Uterus* of theſe Fiſhes, he takes occaſion to examine, with what ground ſeveral famous *Naturaliſts* and *Anatomiſts* have affirm'd, that Eggs are the *uterus* expoſed or ejected out of the body of the Animal. Taking a view of their *Heart*, he there finds but *one* ventricle, and diſcourſes of the difficulty ariſing from thence. As for the *Lungs*, he ſaw no clearer footſteps of them in theſe, than he had done in other Fiſhes: but within the mouth he trac'd ſeveral *gaping fiſſures*, and found the receſſes of the *Gills* ſo form'd, that the water taken in at the mouth, being let out by theſe dores, cannot by them re-enter, by reaſon of a skin, outwardly paſſing over every hole, and covering it. Where he intimates, that though Fiſhes have not *true* Lungs, yet they want not a *Succedaneum* thereto; to wit, the *Gills*; and if *water* may be to Fiſhes, what *Air* is to terreſtrial Animals, for Reſpiration: aſſerting, that whereas nothing is ſo neceſſary for the conſervation of Animal life, as a reciprocal Acceſs and Receſs of the *Ambient* to the ſanguineous veſſels, tis all one, whether that be done by receiving the Ambient *within* the body, or by its gentle paſſing *by* the *Prominent* veſſels of the *Gills*.

The other *Epiſtle*, contains ſome Ingenious Obſervations, touching the way, by which the Chicken, yet in the ſhell, is nouriſh't, *videl.* not by the conveyance of the *Yolk* into the *Liver* by the *Umbilical* veſſels, nor into the *Stomack* by the

Mouth, but by a Peculiar *ductus*, by him deſcribed, into the *Inteſtins*, where,according to his alledged experience,it is turn'd into *Chyle*: which he affirms, he hath diſcover'd,by taking an Egge from under a brooding Hen, when the Chicken was ready to break forth, and when he was looking for the paſſage of the *Yolk*, out of its integument into the *Liver*, by finding *it* paſs thence into the *Inteſtins*,as he found the *White* to do by the *mouth* into the *belly*. Whence he inclines to infer, that, ſince every *fœtus* takes in at the mouth the liquor it ſwims in, and ſince the Chicken receives the *white* of the Egge into the *mouth*, and the *yolk* by the new diſcover'd *ductus* into the *Inteſtins*,it cannot be certainly made out, that a *part* of the *Chyle* is conveyed into the *Liver*,before it paſſes into the *Heart*: Exhorting in the mean time the *Patrons* of the *Liver*,that they would produce Experiments to evince their Ratiocinations.

III. *Regneri de Graeff, de Succi Pancreatici Natura & uſu, Exercitatio Anatomico-medica.* In this Tract,the Induſtrious Author, after he has enumerated the various opinions of *Anatomiſts* concerning the uſe of that kernelly ſubſtance, call'd *Pancreas* (in *Engliſh*,the *Sweetbred*) endeavours to prove experimentally that this *Glandule* was not form'd by Nature, to ſeparate any *Excrementitious* humor,and to convey it into the *Inteſtins*, but to prepare an *uſeful* juyce out of the Blood and Animal ſpirits,of a ſomewhat *Acid* taſte, and to carry the ſame into the Gut, call'd *Duodenum*, to be there mixt with the Aliment, that has been in ſome degree already fermented in the Stomack, for a further fermentation, to be produced by the conflux of the ſaid acid *Pancreatick* juyce and ſome *Bilious* matter,abounding with volatile Salt,cauſing an Efferveſcence; which done, that juyce is,together with the purer part of the nouriſhment,carried into the *Milkie* veins, thence into the *common receptacle* of the *Chyle* and *Lymphatick liquor*, and ſo through the *ductus Thoracicus* into the right Ventricle of the Heart.

This Aſſertion,firſt advanced(ſaith the *Author*) partly by *Gothofredus Mœbius*, partly by *Franciſcus de le Boe Sylvius*, he undertakes to prove by experiments; which,indeed,he has with much induſtry,tried upon ſeveral Animals, to the end that he might collect ſome of this juyce of the *Pancreas* for a taſte: which having at laſt obtained, and found it ſomewhat *acid*, he thereupon proceeds to deliver his opinion both of the *conſtitution* and quantity of this *Succus* in *healthy* Animals, and the vices thereof,in the *unhealthy*: deriving moſt diſeaſes *partly* from its too great Acidity,or from its ſaltneſs,or harſhneſs; *partly* from its paucity or redundancy: but eſpecially, endeavouring to reduce from thence, as all *intermittent Feavers* (of all the *Phænomena* whereof he ventures to aſſign the cauſes from this *Hypotheſis*) ſo alſo the *Gout*,*Syncope's*,*Stranguries*,*Oppilations*,*Diarrhœas*, *Dyſenteries*,*Hyſterical* and *Colick paſſions*,&c. All which he concludes with mentioning the waies and remedies to cure the manifold peccancy of this juyce by Evacuations and Alterations.

This ſeeming to be a *new* as well as a *conſiderable* diſcovery,it is hop'd,that others will by this intimation be invited to proſecute the ſame by further experiments,either to confirm what this Author has ſtarted,if true,or to rectifie it,if he be miſtaken.

NOTE.

In *Fig.* 1. of *Num.* 9 of theſe Tracts,the Graver hath placed the bended *end* of the *ſpringing Wire* C F,above the *Wire-ſtaple* B, between it and the *Ring E*, of the *Weight* D; whereas *that* end ſhould have been ſo expreſſed, as to paſs *under* the *Wire-ſtaple*,betwixt its two Wires,into the ſaid *Ring*.

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